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**From:** Michael Ritorto [mritorto@rouxinc.com]  
**Sent:** 7/21/2016 11:41:55 PM  
**To:** Cirian, Mike [Cirian.Mike@epa.gov]  
**CC:** Hoogerheide, Roger [Hoogerheide.Roger@epa.gov]; John Stroiazzo [John.Stroiazzo@glencore-ca.com]; Steve Wright - CFAC [swright@cfaluminum.com]; Andrew Baris [abaris@rouxinc.com]  
**Subject:** RE: CFAC - Field Modification No. 4  
**Attachments:** removed.txt; ISM SOP 2 - NC-OP-046 Subsampling Rev. 1.pdf; ISM SOP 1- NC-OP-044 Soil Processing Rev 1.pdf; SAP-Record of Modification No 4.docx; 5.12 Incremental Soil Sampling.pdf

Mike,

Please see the attached revised MOD#4 and associated documents as requested.

**Michael Ritorto**

**Senior Hydrogeologist | ROUX ASSOCIATES, INC.**

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**From:** Cirian, Mike [mailto:Cirian.Mike@epa.gov]  
**Sent:** Wednesday, July 13, 2016 6:35 PM  
**To:** Michael Ritorto <mritorto@rouxinc.com>; Andrew Baris <abaris@rouxinc.com>  
**Cc:** Hoogerheide, Roger <Hoogerheide.Roger@epa.gov>; John Stroiazzo <John.Stroiazzo@glencore-ca.com>; Steve Wright - CFAC <swright@cfaluminum.com>  
**Subject:** CFAC - Field Modification No. 4

Hello Mike,

Upon review of the Phase I SAP MOD #4 Record of Modification from Roux, please address the following comments:

- Description of Modification section:
  - Please attach a copy of the TestAmerica Standard Operating Procedure (SOP) for Incremental Sampling Methodology (ISM).
  - Please describe the ISM “wedge” approach to obtain aliquots from the direct-push soil cores in detail and note any modifications.
- Rationale for Modifications/Potential Implications of Modifications section:
  - Please change the word ‘Rational’ to ‘Rationale’ in the heading for the *Rationale for Modifications/Potential Implications of Modifications* section.
  - Please modify the second sentence as such: “Specifically, CDM Smith personnel were concerned over the possibility for a potential bias because the field processing...”
  - Please add to the section a discussion of the fact that CDM Smith was concerned not only that there may be a potential bias introduced by field processing (e.g., smaller soil particles may have settled upon hand mixing the soil, and subsamples were not collected in accordance with ITRC ISM guidance resulting in a sample not representative of the specified sampling area).

- Please note in the fourth sentence that the initial sampling approach could have resulted in a low or a high bias.
- Proposed Text Modifications in Associated Document section:
  - Please note that the soil sampling SOP should be modified to include the agreed upon sampling approach if future sampling is to be conducted.
- Data Quality Indicator
  - Please also mark the box for 'High Bias'. It is possible that if a high bias is demonstrated it would be favorable to resample the other decision units (DUs). This resampling could potentially save on remediation costs if the high bias resulted in risk above an established level of concern.
  - In the 'Note', please elaborate on how this evaluation will be performed such that it can be determined if re-sampling should occur in the remaining 12 DUs. Please add the following: "In order to determine if re-sampling should occur in the decision units that have not yet been re-sampled, the analytical results for decision units that have not been re-sampled should be adjusted such that the result accounts for the variability between sampling methodologies and the limited re-sampling of the DUs and then compared relative to screening thresholds. In order to make this adjustment, the maximum RPD for the decision units that have been re-sampled should be determined on a chemical by chemical basis. This maximum RPD for each chemical should be increased by 10% to account for the limited re-sampling and unknown realm of uncertainty. The original result for the DUs should be increased by this percentage (maximum RPD% +10%). If this adjusted value exceeds the minimum of the applicable human health or ecological screening values for a depth interval, and would not have prior to the adjustment, re-sampling of the entire interval according to the current protocol is required."

Mike Cirian, PE  
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US EPA  
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